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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/903,387	07/11/2001	Richard B. Dyott	KVC-039.01	8324

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EXAMINER

LIN, TINA M

ART UNIT PAPER NUMBER

2874

DATE MAILED: 05/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)
	09/903,387		DYOTT, RICHARD B.
	Examiner	Art Unit	
	Tina M Lin	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18, 21 and 24-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-42 is/are allowed.
- 6) ☒ Claim(s) 1-18, 21, 24, 43-53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

This Office action is responsive to applicant's communication submitted on 01 May 2003.

The applicant's arguments have been carefully studied and re-evaluated by the examiner. The arguments advanced therein, considered together with the amendments made to the claims, are persuasive and the rejections to the amended claims based upon prior art made of record in the previous Office Action are withdrawn. In view of further search, however, and the consequent discovery of relevant prior art documents, a new rejection is set forth. This action is **not** made final.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 12-15 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,695,123 to Chang et al. and further in view of U.S. Patent 6,144,779 to Binkley et al. Chang et al. teaches removing cladding, removing a portion of the core and replacing it with a metal layer and since the metal layer has the optical characteristics of a polarizer plate, it can be said to be an optical material. Chang et al. further discloses depositing the optical material to replace the removed portion of the core and cladding and replacing the cladding. (Figure 1) But Chang et al. fails to further disclose the optical material to be selected from a group consisting of an electro-optic polymer, a thermo-optic material, a rare-earth doped material, a material with a

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high verdet constant and a material with amplification properties. However, Binkley et al. also discloses removing a part of the core and replacing the core with materials of different optical properties. (Column 4 Lines 7-30) Binkley et al. further discloses that these materials may be an electro-optic material, a thermo-optic material or a magneto-optic material. (Column 9 Lines 30-35) Since both Chang et al. and Binkley et al. both discuss removing a portion of the core and replacing it with a different material, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have replaced the removed portion of the core with either an electro-optic material or a thermo-optic material. Furthermore, Chang et al. discloses the portion of the removed core to be replaced by metal including but not limited to silver, aluminum, copper or gold. Since the verdet constant is a constant dealing with magnetic properties in materials and metals, it would have been obvious at the invention was made to a person having ordinary skill in the art to have used a metal with a high verdet constant to replace the removed portion of the core.

Claims 1, 12-15 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,695,123 to Chang et al. and further in view of U.S. Patent 5,710,852 to Weber. Chang et al. teaches removing cladding, removing a portion of the core and replacing it with a metal layer and since the metal layer has the optical characteristics of a polarizer plate, it can be said to be an optical material. Chang et al. further discloses depositing the optical material to replace the removed portion of the core and cladding and replacing the cladding. (Figure 1) But Chang et al. fails to further disclose the optical material to be selected from a group consisting of an electro-optic polymer, a thermo-optic material, a rare-earth doped material, a material with a high verdet constant and a material with amplification properties. However, Weber also

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discloses removing a part of the core and replacing the portion of the removed core. (Column 4 Lines 50-60) Weber further discloses that these materials may contain erbium in the center of the core so that the amplification effect is increased. (Column 4 Lines 50-60) Since erbium is a rare earth material doped in the center of the core, and both Chang et al. and Weber both discuss removing a portion of the core and replacing it with a different material, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have replaced the removed portion of the core with an erbium doped material or a metals with amplification properties. Furthermore, Chang et al. discloses the portion of the removed core to be replaced by metal including but not limited to silver, aluminum, copper or gold. Since the verdet constant is a constant dealing with magnetic properties in materials and metals, it would have been obvious at the invention was made to a person having ordinary skill in the art to have used a metal with a high verdet constant to replace the removed portion of the core.

Claims 2-4 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,695,123 to Chang et al. in view of U.S. Patent 6,144,779 to Binkley et al. or U.S. Patent 5,710,852 to Weber as applied to claim 1 above, and further in view of U.S. Patent 6,292,282 B1 to Mossberg et al. Chang et al. in view of Binkley et al. or Weber discloses all of claim 1 above as well as removing fiber optic material from a fiber by any suitable method. (Column 6 Lines 1-5) But, Chang et al. in view of Binkley et al. or Weber does not specifically disclose etching, polishing or excavating as methods to remove optical fiber material. However, Mossberg et al does disclose the removal, whether partial or full, of optical material by etching, polishing or other processes. (Column 13 Lines 10-20) Since etching, polishing and excavating are well known in the art as optical material removing methods, it would have been obvious at

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the time the invention was made to a person having ordinary skill in the art to have used any of the methods stated above to remove optical material from an optical fiber.

Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,695,123 to Chang et al. in view of U.S. Patent 6,144,779 to Binkley et al. or U.S. Patent 5,710,852 to Weber as applied to claim 1 above, and further in view of U.S. Patent 4,798,438 to Moore et al. In regards to claims 5 and 8, Chang et al. in view of Binkley et al. or Weber discloses all of claim 1 above as well as removing fiber optic material from a fiber by any suitable method. (Column 6 Lines 1-5) But, Chang et al. in view of Binkley et al. or Weber does not specifically disclose an asymmetric fiber or etching and polishing as methods to remove optical fiber material. However, Moore et al does disclose the removal of optical material by etching or asymmetric polishing. (Column 1 Lines 15-25) Since etching and polishing are well known in the art as optical material removing methods, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used any of the methods stated above to remove optical material from an optical fiber. Additionally, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have etched the necessary circumference, whether it is full or partial, in order to remove the necessary amount of cladding.

Claims 6, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,695,123 to Chang et al. in view of U.S. Patent 6,144,779 to Binkley et al. or U.S. Patent 5,710,852 to Weber and in further view of U.S. Patent 4,798,438 to Moore et al. as applied to claims 5 and 8 above, and further in view of U.S. Patent 6,292,282 B1 to Mossberg et al. Chang et al. in view of Binkley et al. or Weber and Moore et al. disclose all recited in claims 5 and 8,

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but they fail to disclose masking a face and then etching to remove cladding nor does Chang et al., Binkley et al., Weber and Moore et al. etching and excavating as methods to remove optical fiber material. However, Chang et al. in view of Binkley et al. and Weber discloses all of claim 1 above as well as removing fiber optic material from a fiber by any suitable method. (Column 6 Lines 1-5) But, Chang et al. in view of Binkley et al. or Weber does not specifically disclose etching and excavating as methods to remove optical fiber material. However, Mossberg et al. does disclose the removal, whether partial or full, of optical material by etching or other processes. (Column 13 Lines 10-20) Since etching excavating are well known in the art as optical material removing methods, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used any of the methods stated above to remove optical material from an optical fiber.

Claims 44-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,695,123 to Chang et al. in view of U.S. Patent 6,144,779 to Binkley et al. or U.S. Patent 5,710,852 to Weber as applied to claim 43 above. In regards to claims 44, 45 and 49, Chang et al. in view of Binkley et al. or Weber fails to disclose an activation means for altering optical properties and also fails to disclose an activation means further comprising an electrode. However, Chang et al. does disclose a photodetector. A photodetector produces an output electrical signal, just like an electrode, so therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used either a photodetector or an electrode as an activation means for altering optical properties. In regards to claims 46, 52, and 53, Chang et al. in view of Binkley et al. or Weber fails to disclose a phase modulator, tunable filter or an in-fiber isolator. However, Chang et al. does disclose a polarizer.

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It is well known in the art to be able to use a polarizer can be used as a phase modulator, tunable filter or isolator since these four components are similar. Therefore it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have replaced the use of a polarizer with a phase modulator, filter or isolator. In regards to claim 47, Chang et al. in view of Binkley et al. or Weber fails to disclose a second fiber joined with the first fiber as a switchable directional coupler. However, Chang et al. does disclose in Figure 1 a coupler half (Column 5 Lines 34-48), which implies there is another half able to be coupled with the first half. It is also well known in the art of evanescent wave couplers to have a coupler that is a switchable directional coupler, so therefore it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have known to couple two halves of a fiber together in order to create a switchable directional coupler. In regards to claims 48 and 50, Chang et al. in view of Binkley or Weber fails to disclose a first or second protective layer. However, it is well known in the art to use a protective layer over an electrode or activation means in order to protect the component. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have placed a protective covering over the components for the purpose of protection. In regards to claim 51, Chang et al. does not disclose the use of rare earth doped materials, however, since the doped materials have optical characteristics, and so does the metal plate, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used a material that will give the most optimal optical characteristics and therefore the most optimal result.

Claims 16- 18, 21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,695,123 to Chang et al. in view of U.S. Patent 6,144,779 to Binkley et al. or U.S.

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Patent 5,710,852 to Weber as applied to claim 1 above. In regards to claims 16, 17, and 21, Chang et al. in view of Binkley et al. or Weber fails to disclose a first or second protective layer. However, it is well known in the art to use a protective layer over an electrode or activation means in order to protect the component. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have placed a protective covering over the components for the purpose of protection. In regards to claim 18, Chang et al. in view of Binkley et al. or Weber fails to disclose affixing an activation means comprising an electrode. However, Chang et al. does disclose a photodetector. A photodetector produces an output electrical signal, just like an electrode, so therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used either a photodetector or an electrode as an activation means for altering optical properties. In addition, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have affixed or secured the photodetector. In regards to claim 24, Chang et al. in view of Binkley et al. or Weber fails to disclose a boundary between the core and optical material replacing the core. However, it would have been obvious at the time the invention was made to a person to a person having ordinary skill in the art to have formed a boundary between the core and then new material.

Allowable Subject Matter

Claims 25-42 are allowed, for the same reasons stated in the previous office action. (Paper no. 7) Claims 25-36 recite a method in Claim 1 further comprising the steps of etching a first length of the fiber in order to remove the cladding and etching a second, shorter length of the fiber to remove the remaining cladding and part of the core. Claims 37-42 recite a method

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comprising the steps of etching a first length of the fiber in order to remove the cladding and etching a second shorter length of the fiber to remove the remaining cladding and part of the core. None of the prior art documents disclose or reasonably suggest the method or features as claimed by applicant.

The documents submitted by applicant in the Information Disclosure Statement have been considered and made of record. Note attached copy of form PTO-1449.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References C and D both discuss removing a portion of a core in an optical waveguide device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tina M Lin whose telephone number is (703) 305-1959. The examiner can normally be reached on Monday-Friday 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308-4819. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

TML *ml*
May 21, 2003

John D. Lee
John D. Lee
Primary Examiner